

*Sub A 17*  
WHAT IS CLAIMED IS:

1 1. A communications system for secure wireless  
2 communications, said communications system comprising:  
3 a first device having transceiving means therein  
4 for communicating in a first and a second communication mode;  
5 and  
6 a second device, in wireless communication with  
7 said first device, said first and second devices wirelessly  
8 communicating in said first communication mode using an  
9 infrared signal and in said second communication mode using  
10 a radiofrequency signal.

1 2. The communications system according to claim 1,  
2 wherein said first and second devices transceive a plurality  
3 of messages therebetween in said second communication mode,  
4 wherein, prior to transceiving a security message  
5 therebetween, said first and second devices switch  
6 transceiving to said first communication mode, and transmit  
7 said security message in said first communication mode.

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1 3. The communications system according to claim 2,  
2 wherein said first and second devices, upon completion of the

3 transceiving of said security message, switch transceiving  
4 therebetween to said second communication mode.

1 4. The communications system according to claim 2,  
2 wherein said security message comprises a plurality of  
3 encryption keys for the subsequent encryption of a plurality  
4 of said messages transceived in said second communication  
5 mode.

1 5. The communications system according to claim 2,  
2 wherein upon said second device switching said transceiving  
3 to said first communication mode, said second device  
4 transmits an infrared request message to said first device.

1 6. The communication system according to claim 5,  
2 wherein said first device, upon receipt of said infrared  
3 request message, transmits said security message to said  
4 second device.

1 7. The communication system according to claim 6,  
2 wherein said security message comprises a plurality of  
3 encryption keys for the subsequent encryption of a plurality

4 of said messages transceived in said second communication  
5 mode.

1 8. The communication system according to claim 1,  
2 wherein said transceiving means within said first device  
3 comprises:

4 infrared transceiving means for transceiving  
5 infrared signals with said second device in said first  
6 communications mode;

7 radiofrequency transceiving means for transceiving  
8 radiofrequency signals with said second device in said second  
9 communications mode; and

10 switching means for switching between said infrared  
11 and radiofrequency transceiving means.

1 9. The communication system according to claim 8,  
2 wherein said infrared transceiving means comprises:

3 a photodetector for receiving said infrared signals  
4 from said second device; and

5 an infrared emitter for transmitting said infrared  
6 signals to said second device.

1           10. The communication system according to claim 1,  
2       wherein said second device comprises a transceiving means  
3       therein, said transceiving means within said second device  
4       comprising:

5               infrared transceiving means for transceiving said  
6       infrared signals with said first device in said first  
7       communications mode;

8               radiofrequency transceiving means for transceiving  
9       said radiofrequency signals with said first device in said  
10      second communications mode; and

11              switching means for switching between said infrared  
12      and radiofrequency transceiving means.

1           11. The communication system according to claim 10,  
2       wherein said infrared transceiving means within said second  
3       device comprises:

4               a photodetector for receiving said infrared signals  
5       from said first device; and

6               an infrared emitter for transmitting said infrared  
7       signals to said first device.

1           12. The communication system according to claim 1,  
2       wherein said communication system is a cordless system.

13. The communication system according to claim 1,  
wherein said first and second devices are each selected from  
the group consisting of:  
mobile telephones, home base stations, SIM cards,  
headsets, computers, printers, plotters, projectors,  
facsimile devices, pagers, data organizers, computer  
terminals, scanners, microphones, PC cards, televisions,  
radios, stereos, VCRs, light devices, dimmers, thermostats,  
doors, refrigerators, freezers, ovens, washers, dryers,  
answering machines, home alarms, car alarms, and other  
peripheral and portable devices.

14. The communication system according to claim 1,  
wherein said first and second devices communicate on a  
radiofrequency band ranging from about 2.4 GHz to about 2.483  
GHz.

15. The communication system according to claim 14,  
wherein said band is at about 2.45 GHz.

16. A method for establishing a secure communication  
link between a dual-mode first device and a dual-mode second

3 device of a communication system, a first mode of said dual-  
4 mode being an infrared mode and a second mode of said dual-  
5 mode being a radiofrequency mode, said method comprising the  
6 steps of:

7 forwarding an infrared request message in said  
8 infrared mode;

9 establishing said secure communication link between  
10 said first and second devices, said secure communication link  
11 operating in said infrared mode; and

12 transferring, during said secure communications  
13 link, a security message between said first and second  
14 devices in said infrared mode.

1 17. The method according to claim 16, wherein prior to  
2 said establishment of said secure communication link, said  
3 first and second devices operated in said radiofrequency  
4 mode.

1 18. The method according to claim 16, wherein, in said  
2 step of forwarding, said first device forwards said infrared  
3 request message to said second device, and said second  
4 device, upon receipt of said infrared request message,  
5 replies with an infrared reply message.

1           19. The method according to claim 16, wherein said  
2 security message comprises a plurality of encryption keys for  
3 the subsequent encryption of a plurality of transmissions in  
4 said radiofrequency mode.

1           20. The method according to claim 16, further  
2 comprising, after said step of transferring said security  
3 message, the step of:

4                 establishing a radiofrequency communication link  
5 between said first and second devices in said radiofrequency  
6 mode.

1           21. The method according to claim 16, further  
2 comprising, after said step of transferring said security  
3 message, the step of:

4                 forwarding, from said second device, a security  
5 poll signal to said first device.

1           22. The method according to claim 21, wherein said step  
2 of forwarding said security poll signal occurs periodically.

1           23. The method according to claim 21, wherein said step  
2           of forwarding said security poll signal occurs randomly.

1           24. The method according to claim 16, wherein said  
2           first and second devices are each selected from the group  
3           consisting of:

4                     mobile telephones, home base stations, SIM cards,  
5           headsets, computers, printers, plotters, projectors,  
6           facsimile devices, pagers, data organizers, computer  
7           terminals, scanners, microphones, PC cards, televisions,  
8           radios, stereos, VCRs, light devices, dimmers, thermostats,  
9           doors, refrigerators, freezers, ovens, washers, dryers,  
10          answering machines, home alarms, car alarms, and other  
11          peripheral and portable devices.

1           25. The method according to claim 16, wherein said  
2           first and second devices communicate on a radiofrequency band  
3           ranging from about 2.4 GHz to about 2.483 GHz.

1           26. The method according to claim 25, wherein said band  
2           is at about 2.45 GHz..

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1           27. A transceiving device for secure wireless  
2       communications in a communications system, said device  
3       comprising:

4                 radiofrequency transceiving means for transceiving  
5       a plurality of radiofrequency transmissions within said  
6       communications system; and

7                 infrared transceiving means for transceiving a  
8       plurality of infrared transmissions within said  
9       communications system.

1           28. The transceiving device according to claim 27,  
2       wherein said infrared transceiving means comprises:

3                 a photodetector for receiving said infrared  
4       transmissions; and

5                 an infrared emitter for transmitting said infrared  
6       transmissions.

1           29. The transceiving device according to claim 28,  
2       wherein said infrared emitter comprises a light-emitting  
3       diode.

1           30. The transceiving device according to claim 27,  
2       wherein said transceiving device switches transceiving from

3 said radiofrequency transceiving means to said infrared  
4 transceiving means prior to the transmission of an infrared  
5 security message within said communications system.

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1 31. The transceiving device according to claim 30,  
2 wherein, after the transmission of said infrared security  
3 message, said transceiving device switches transceiving to  
4 said radiofrequency transceiving means.

1 32. The transceiving device according to claim 30,  
2 wherein said infrared security transmission comprises a  
3 plurality of encryption keys for the subsequent encryption  
4 of a plurality of said radiofrequency transmissions between  
5 said transceiving device and said communications system.

1 33. The transceiving device according to claim 27,  
2 wherein said first and second devices are each selected from  
3 the group consisting of:

4 mobile telephones, home base stations, SIM cards,  
5 headsets, computers, printers, plotters, projectors,  
6 facsimile devices, pagers, data organizers, computer  
7 terminals, scanners, microphones, PC cards, televisions,  
8 radios, stereos, VCRs, light devices, dimmers, thermostats,

9 doors, refrigerators, freezers, ovens, washers, dryers,  
10 answering machines, home alarms, car alarms, and other  
11 peripheral and portable devices.

1 *Sub A57* 34. The Transceiving device according to claim 27,  
2 wherein said first and second devices communicate on a  
3 radiofrequency band ranging from about 2.4 GHz to about 2.483  
4 GHz.

1 35. The transceiving device according to claim 34,  
2 wherein said band is at about 2.45 GHz.